Converting a late 944 power steering rack to a “manual” rack

(These instructions are for my own personal use. If you follow these instructions and damage your car, yourself, your dog, hurt your feelings, or get a busted knuckle, it is not my fault. Use at your own risk. You are liable for your own actions.)

1. Start by removing the rack from the car. I left the tie-rod ends attached to the spindles and unscrewed the inner tie rods from the rack, since they had to be removed anyway. I ended up cutting many of the hard lines from the power steering system to ease removing the rack; this will ruin your power steering system permanently, so do at your own risk.
2. Remove the three screws holding this little plate on. Remove the two larger bolts by alternating a few turns on each bolt; the plate is under tension from the spring.
3. Remove the three bolts on the top of the “tower” of the rack. The black seal is holding the cover in place, so very carefully pry it up trying not to scratch the mating surface.
Here is a view from the top, once the cover is removed.
4. Carefully pull up on the shaft, being careful not to scratch the steering mechanism, or lose any of the washers or bearings. Pay very close attention to the order of the bearings and washers.
Here is a view of all the items removed thus far.
5. Here is a view of the housing. Carefully remove the bearing and washer underneath it.
6. Use a hammer and punch (or something similar) to tap this ring in a counter-clockwise direction. Keep unscrewing until the two halves of the rack are separated.
I used a T15 torx driver.
7. Separate the two halves. Be very careful not to damage the steering rack in anyway.
8. This hard line banjo bolt was stripped. I decided to just cut it short with a hack-saw and hammer the end closed. The system will no longer be pressurized, so I just need to keep dirt and debris out.
Smashed closed with plyers. I filed the sharp edges as to not cut myself handling the rack.
9. While you can buy M12 x 1.5 caps for all the “ports” in the system, I decided to cheap out and crimp two of the lines shut, and found some scrap lying around to take the place of the hard line for the other two banjo bolts. Like I said before, you just need to keep the dirt out (while keeping the bolts from sticking too far into the housing).
Another view. Don’t judge me.
10. All the parts cleaned. This makes everything much easier to handle. Notice I replaced the cardboard with a clean sheet. The bearings and rack need to be free of dirt and debri, so pay close attention to where you’re putting things. That steering shaft bit (far left in picture) will roll around on you too.
11. To reduce the effort needed to operate the rack, this little guy needs to be removed. It’s surrounded by c-clips. Use a good c-clip removal tool here, so you don’t scratch the rack. I needed to use a screwdriver to carefully guide the c-clip out of its groove (next picture).
12. With the c-clip removed, carefully guide the piston off the shaft.
13. Remove the two rubber seals, and remaining washer and c-clip.
I put the rubber seals back, but they probably aren’t necessary anymore.
All the items removed from the rack.
15. Liberally grease the rack. The dark grease is left over from under the shiny bit in the middle of the rack. I guess I didn’t clean it as well as I thought...
16. Guide the rack back into the right housing, then screw the left section back on. Pay close attention to the orientation of the rack mount on the left (it can be easily rotated however) and the small “turret” looking thing that had the black hose connected to it. The latter cannot be easily adjusted, so be sure to line it back up in line with the one on the other side of the rack.
17. I forgot to plug this guy initially. I used some more crap I had lying around.
18. Liberally grease and reinstall the shaft and its bearings and washers. Do NOT use any force. If it does not drop in as far as you see it here, be sure the rack is rotated so the teeth are facing the right direction, and gently rotate the shaft and slide the rack back and forth until it drops in practically under its own weight. Good luck trying to get this back exactly as it was before; just prepare to adjust your steering wheel to center correctly again when you’re done.
19. Reinstall the bearing and washer. I greased it all, just in case.
Here is everything back together. I could have plugged the two “turrets” instead of reinstalling the black hose, but I didn’t have anything suitable handy.
A view of the back of the “tower,” reassembled.
Tie rods reattached (oh what fun that was), and the steering coupler attached. Much cleaner, less weight, and one less fluid to worry about leaking on the deck!